محاضرة 8 — دكتور — الثلاثاء — 19/4/2016

Summary of previous models

CLD ⇒ Concerned with causes an effects (Causality Point of view)

SFD ⇒ to prove that no system is static

DFD ⇒ Concerned with flow of data (data Point of view)

ERD, EERD ⇒ Concerned with relations between entities

CLD & SFD are System dynamics oriented

In Science, if you, for example, see DFD as incomplete or have problems, You either

① reject it and come up with a better model

② enhance it by modifying it

* EERD introduced new features to ERD, Like inheritance (Specidization and generalization)

* Many-to-Many are not the same

- fridges and motors ⇒ fridges contain motors

a fridge can have any motor, motor can be in any fridge.

- Customers and goods are many to many, but nothing contains the other.

# disjoint and overlap

disjoint → item can be in one children only

overlap → item can be in more than one childrens

# an item can be in parent and not categorized to a children, like registring a vehicle but

not knowing its type (car, truck, ...)

Normalization in relational model

We will stud 1st, 2nd, 3rd normalization

full dependency
Partial dependency
transitive dependency
} types of dependency

dependency occur between attributes

# data can be drived from other data.

# data can be measured or observed.

dependency of non-key attribute on another non-key attribute is a transitive dependency

# Rule: Best table design is where every non-key attribute fully depend on a key attribute

# to Solve dependency, you normalize, that's you seperate entities.
this causes performance degredation since you get more tables.

Advice when designing

- Avoid Redundency
- Try not to use weak entities
- don't use an entity set when attribute can do.

* First normal form has no multivalue attribute
# having key attribute means we are in 1st normal form
* Normalization avoids anomaly deletion and insertion
# 2nd normal form deals with partial dependency
# 3rd normal form deals with transitive dependency

first normal form: no multivalue attribute, and key attribute must be defined
Second normal form: remove partial dependency
third normal form: remove transitive dependency

Checking 1st, 2nd, 3rd normalization is a must.